

CLAIMS

We claim:

1. A clutch driven disc assembly comprising:
 - a hub having an axis of rotation;
 - an annular spring plate rotatably fixed to the hub;
 - a friction disc assembly mounted concentric with the axis of rotation for rotation relative to the spring plate;
 - a plurality of drive springs operably disposed between the spring plate and the friction disc assembly;
 - the friction disc assembly including:
 - a reinforcing plate having spring pockets receiving the drive springs;
 - a substantially annular disc fixed to the reinforcing plate; and
 - a friction material button fixed to the substantially annular disc and comprising:
 - a friction material cookie,
 - a backer plate fixed to the friction material cookie of substantially the same size and shape as the friction material cookie,
 - a laser weld bead joining the substantially annular disc and the backer plate which fixes the friction material button to the substantially annular disc.
2. A clutch driven disc assembly as claimed in claim 1 wherein the laser weld bead is of a height no greater than a height of the backer plate.
3. A clutch driven disc assembly as claimed in claim 1 wherein the substantially annular disc has a plurality of radially extending paddle areas, and both the

friction material and the backing plate are substantially the same size as the paddle areas.

4. A method for fabricating a clutch driven disc including the steps of: forming a hub;
 - rotatably fixing an annular spring plate to the hub concentric thereto;
 - mounting a friction disc assembly concentric with the hub for rotation relative to the spring plate;
 - installing a plurality of drive springs between the spring plate and the disc assembly;
 - forming the friction disc assembly by:
 - forming a reinforcing plate having spring pockets configured to receive the drive springs;
 - forming a substantially annular disc extending radially beyond the reinforcing plate;
 - fixing the substantially annular disc to the reinforcing plate; and
 - forming a backer plate of steel;
 - forming a cookie out of friction material of substantially the same size and shape as the backer plate;
 - fixing the friction cookie to the backer plate to form a friction material button;
 - laser welding the backer plate to the substantially annular disc by directing a laser beam toward an interface between the backer plate and the substantially annual disc to form a plurality of weld beads between the backer plate and the substantially annular disc; and
 - preheating and postheating a location where the laser weld beads are formed to a temperature of at least approximately 500 degrees Fahrenheit.

5. A method of forming a clutch driven disc as claimed in claim 4 wherein the resultant laser weld beads are of a height no greater than a height of the backer plate.

6. A method of forming a clutch driven disc as claimed in claim 4 wherein the substantially annular disc is provided with a plurality of radially extending paddle areas, and the friction material buttons are substantially the same size as the paddle areas.

7. A method of forming a clutch driven disc as claimed in claim 4 wherein the postheating maintains the location where the laser weld beads are formed at a temperature in the range of approximately 700 degrees Fahrenheit to 800 degrees Fahrenheit.

8. A method of fixing a friction material cookie to a driven disc paddle including the steps of:

forming an annular disc having a radially extending paddle;

forming a friction material cookie of sintered metal of substantially the same size as the paddle;

forming a backer plate of steel of substantially the same size and shape as the cookie;

fixing the friction cookie to the backer plate to form a friction material button;

laser welding the friction material button to the annular disc, forming a plurality of laser weld beads between the backer plate and the annular disc; and

preheating and postheating a location where the laser weld beads are formed to a temperature of at least approximately 500 degrees Fahrenheit.